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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,388	06/12/2006	Jurgen Lohmann	PAT-01169	5990
26/923	7590	08/07/2008		
BASF CORPORATION Patent Department 1609 BIDDLE AVENUE MAIN BUILDING WYANDOTTE, MI 48192			EXAMINER GEISEL, KARA E	
			ART UNIT 2877	PAPER NUMBER
			NOTIFICATION DATE 08/07/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/596,388

Applicant(s)

LOHMANN ET AL.

Examiner

KARA E. GEISEL

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 23-40 and 42 is/are rejected.
- 7) ☒ Claim(s) 41, 43 and 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/083)
Paper No(s)/Mail Date 0606
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Preliminary Amendment

The preliminary amendments filed on June 12th, 2006 and July 23rd, 2008, have been entered into this application.

Information Disclosure Statement

The information disclosure statement filed June 12th, 2006 has been considered by the examiner.

Drawings

The drawings are objected to because fig. 3 is too dark, making it hard to see the parts of the device.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters in each drawing start with 1, such that 1 in a first drawing will refer to a different part than the 1 in another drawing, 2 in a first drawing will refer to a different part than the 2 in another drawing, etc. For example, "1" has been used to designate a base plate, an SMA socket, and a light source; "2" has been used to designate a holder for the measuring window, a basic body, and a spectrometer with an optical attenuator. **It is noted that the description of the drawings in the specification will need to be corrected as well.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: a brief description of the drawings is missing.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

It appears that the specification only provides for a single flow cell. However, in claim 29, there is claimed a sample analysis cell with three-dimensional flow cell (claim 29), and another three dimensional flow cell (claim 1, from which claim 29 depends). Clarification and correction is required.

Appropriate correction is required.

Claim Objections

Claims 29- 42 and 44 are objected to because of the following informalities:

In regards to claim 29, the preamble is inconsistent with the preamble of the claims with which this claim depends. It appears this could be corrected by amending the claim to state, "The photometric measuring device wherein the reflectance sensor comprises".

In regards to claims 29 and 42, the system control unit comprises "detectors (Ca)", but the rest of the claim only refers to "the detector" (see lines 21 and 23 of claim 29).

In regards to claim 34, "comprsing" is misspelled. Also there is a period located at the end of the claim, as well as after the step af. Finally, there is a comma between "compensation, filter" in step ag, which makes this limitation confusing.

In regards to claims 41 and 44, it appears that applicant should have used the term "measuring" or "measured" instead of "registering" or "registered" (see claim 42, for example).

In regards to claim 42, the system control unit comprises "detectors (Ca)", but the rest of the claim only refers to "the detector" (see lines 22 and 24).

In regards to claim 44, "emilted" is misspelled, and "an receiving" is grammatically incorrect.

Appropriate correction is required.

Claims, which depend on objected to claims, inherit the problems of these claims, and are, therefore, also objected to.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 23-40, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Some examples of this are:

In claim 1, it appears "being transformed" is a literal translation.

Claim 1 omits essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how the feed zone and the outlet are related to the fluid element (i.e. the feed zone for directing the sample containing non-isometric particles to be aligned to a fluid element, etc).

Claim 24 omits essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The claim is a method, however no method steps are claimed at all. Furthermore, the claim depends on claim 1, but appears to have the same claim language as claim 1, and is therefore, not further limiting.

In regards to claim 26, what is meant by "transforming the particles"? Since there are no steps describing how to transform the particles, this claim is unclear. It appears that this language might be a literal translation.

Claim 28 omits essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how is the reflectance sensor connected to the three-dimensional flow cell?

Claim 29 omits essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how are the optical unit, the sample analysis unit, and the system control unit connected to the three-dimensional flow cell of claim 1?

In regards to claims 29 and 42, "sample analysis cell with three-dimensional flow cell (Bb), wherein the optical unit is arranged on one side of the measuring window and the sample analysis cell with three-dimensional flow cell is arranged on the other side of the measuring window, by said cell being pressed against the measuring window in such a way that a gap is formed between the measuring window and sample analysis cell, which gap a liquid sample to be measured containing non-isometric particles must traverse, the liquid sample to be measured being led up to the gap through the three-dimensional flow cell, which is arranged upstream of the gap, in a special flow guide" is narrative, and "being led", from line 18, appears to be a direct translation.

In regards to claim 34, "arranged behind the lamp" is generally confusing, since behind has not been clarified in relation to the rest of the structure. Also, "guided in protective tubes", and "is led" appears to be a literal translation. What is "attenuated in a defined manner"?

Claims, which depend on rejected claims, inherit the problems of these claims, and are, therefore, also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Steenhoek et al. (US Pubs 2002/0131043).

In regards to claims 1 and 24, Steenhoek discloses a three-dimensional flow cell (figs. 3A-B) and method for aligning non-isometric particles in a liquid sample in two axes (it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987)), comprising a feed zone for the sample containing non-isometric particles to be aligned (62) and an outlet for the sample containing non-isometric particles aligned in two axes (64), a fluid element of the sample with the dimensions a , b , c (46) being transformed in an expansion zone into a fluid element with the dimensions $a \times n$, $b/(n \times m)$, $c \times m$, a being the width, b the height and c the length of the fluid element and n and m being constants which depend on the geometry of the flow cell and which signify positive numbers greater than or equal to 1 (it is noted that this flow cell satisfies the condition when both n and $m = 1$; in this case the expansion zone remains the same size as the rest of the fluid element).

In regards to claims 23 and 25, $n=m$ (as discussed above, the flow cell satisfies the equation when $n=m=1$).

In regards to claim 26, the method comprises transforming the particles in a three-dimensional flow cell (as seen in figs. 3A-B, the particles will be moved through a small thin inlet tube to a large rectangular fluid element, thus transforming the dimensions of the fluid or transforming the particles by changing the arrangement of them).

In regards to claim 27, Steenhock discloses a photometric measuring device for measuring the level of attenuation in the propagation of light in a liquid sample containing non-isometric particles (fig. 1), comprising a three-dimensional flow cell for aligning the particles in the liquid sample in two axes as claimed in claim 1 (40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 28-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steenhock et al. (US Pubs 2002/0131043) in view of Martino et al. (US Pubs 2002/0149773).

In regards to claim 28, Steenhock discloses the photometric measuring device with three-dimensional flow cell as discussed above. Steenhock is silent to the device comprising a reflectance sensor. However, it is disclosed that this device is to be used for measuring liquid dispersions and tints (¶ 2).

Martino discloses a similar device comprising a three dimensional flow cell (fig. 9, 300) with a transmission sensor and a reflectance sensor (fiber between the fluid inlet and outlet for transmission and 306 for reflectance) for measuring liquid dispersions and tints (§ 2). This more advanced system allows multiple types of measurements to be performed on the sample, thereby allowing more properties to be determined. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to use the three dimensional flow cell of Steenhock's with the reflectance sensor of Martino's in order to have a more advanced photometric measuring device measure both reflectance and transmittance of the sample in order for more properties of the sample to be determined.

In regards to claim 29, the combined reflectance sensor comprises an optical unit (Martino figs. 1-2), which comprises a light source (26) in the form of a lamp (§ 47), and an optical waveguide (30 and 36) comprising fiber optics, at least one optical waveguide being a reference waveguide (30), b) a sample analysis unit (14), which comprises ba) a measuring window (50 and 52), and bb) a sample analysis cell with three-dimensional flow cell (SteenHock's fig. 3A), wherein the optical unit is arranged on one side of the measuring window and the sample analysis cell with three-dimensional flow cell is arranged on the other side of the measuring window, by said cell being pressed against the measuring window in such a way that a gap is formed between the measuring window and sample analysis cell, which gap a liquid sample to be measured containing non-isometric particles must traverse (as can be seen in fig. 3B of SteenHock's), the liquid sample to be measured being led up to the gap through the three-dimensional flow cell (via 66), which is arranged upstream of the gap, in a special flow guide, and c) a system control unit (Martino 12) comprising detectors (18) for recording measured data and an evaluation device (16) connected thereto, at least one optical waveguide (36) connection being led from the light source (26) to the measuring window (52) and from the measuring window (52) onward to the detector (18), to generate a measured signal, and at least one reference waveguide (30) connection being led directly from the light

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source (26) to the detector (18) or from the measuring window (Ba) to the detector (Ca), to generate a reference signal (§ 47).

In regards to claim 30, the lamp is selected from the group consisting of LEDs, gas discharge lamps and lamps with incandescent filaments (§ 46).

In regards to claim 31, the lamp has an integrated shutter (§ 48).

In regards to claims 32-33, the combined device does not disclose the size of the fibers. However, the size of the fibers is merely a design choice and it would have been obvious to one of ordinary skill in the art to try fibers of different sizes, in order to find the most cost-effective option while still getting the best measurements.

In regards to claim 34, the sensor further comprises at least one of the following features: ac) a compensation filter arranged behind the lamp, which linearises the spectrum of the lamp in such a way that the difference between the highest and lowest intensity of the light emitted by the lamp is a maximum of a factor 4, ad) an IR blocking filter, a condenser and a diffuser, arranged behind the lamp ac) optical waveguides guided in protective tubes and supported over their entire length by means of a supporting frame, af) the reference waveguide is led via a precise spacing element with incorporated diffuser, and attenuated in a defined manner. ag) a compensation filter arranged behind the lamp, and an IR blocking filter, a condenser and a diffuser arranged between lamp and compensation, filter (§ 47).

In regards to claim 35, the measuring window is a planar plate (Steenhoek fig. 3A, 44).

In regards to claim 36, wherein the gap is 2 to 10 mm long and between 0.05 and 5 mm high (Steenhoek § 35).

In regards to claim 37, during the traverse of the liquid sample containing particles, considerable shearing of the sample takes place (Steenhoek § 37).

In regards to claim 38, the sample analysis cell (Bb) is removable (as can be seen by fig. 3B).

In regards to claim 39, the combined sensor is silent to the system control unit having detectors in the form of fiber-optic monolithic diode line sensors which permit a resolution of at least 15 bits. However, the detectors can be any type desired. The examiner takes Official notice that fiber-optic monolithic diode line sensors are well known in the art, and offer a more compact, and rugged sensor. Therefore, it would have been obvious to one of ordinary skill in the art to use a fiber-optic monolithic diode line sensor as the detector of the combined system in order to have a detector which is more compact and rugged.

In regards to claim 40, the combined sensor discloses that all the units of the reflectance sensor are accommodated in a common housing (Martino fig. 1, 12). However, it is silent to comprising ventilation and thermostat-regulated heat dissipation. The examiner takes Official Notice that ventilation and thermostat-regulated heat dissipation are very well known in the art, and are used in housings to control the temperature within the housing in order to protect the delicate measurement sensor. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to include in the common housing of the combined device ventilation and thermostat-regulated heat dissipation in order to control the temperature within the housing in order to protect the delicate measurement sensor.

Allowable Subject Matter

Claims 41-44 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and the objections set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 41, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for measuring the reflectance of a liquid sample containing non-isometric particles, comprising: i) forming a sample stream of a sample containing non-isometric particles with a defined thickness and defined alignment of the particles in the sample in two axes, iii) receiving and registering

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the diffusely reflected radiation as a reflectance signal at a **plurality of angles**, iv) receiving and registering a reference signal, the reference signal being electromagnetic radiation which is emitted by the same light source used to irradiate the sample stream **but which does not interact with the sample**, wherein the reflectance signal and the reference signal are registered simultaneously, in combination with the rest of the limitations of claim 41.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Kara E Gelsel/
Patent Examiner,
Art Unit 2877**

August 8, 2008